2009-09-25 Friday Pbar Notes

Thursday, September 24, 2009
1:31 PM

Stacking

- Stacking Numbers
  - <stacking rate> = 22.9 mA/hr
  - <producdtion> = 23.3 e-6/p
  - <protons on target> = 6.4e12
- LCW regulation problem? The Tower water regulation valve only varies between 93-100%.
- D:IP403 started tripping off. Controls and Vacuum experts examined the supply and say the problem points to either a bad cable or ion pump. This is an ion pump that we changed out over the shutdown.
- We still have to manually target tune since the AP2 portion of the overthruster is off. The reason for this is the AP2 BPMs are reading back bad data.

Transfers

- Unstacked 424 mA in 41 transfers over 20 sets.
  - Average efficiency is 93.6%
  - We are slowly increasing.
- One set of transfers was held off after a old MI DCCT parameter was obsoleted that was called by both the beam line orbit program and the Accumulator TBT program.
- Shot scrapbook 2:30am transfers (#13883)
  - Shows only 3
  - There were 4 transfers
  - Transfer 4 stuck on the slot 1.
- We are having to make frequency A:EKIK timing changes, much more so than usual.

Requests

- Align Debuncher Momentum systems
  - Need long cycle time
  - Very little stacking
  - 30 minutes
- Full check-out of all cooling systems
  - Need stacking pulses available
  - Very destructive to stacking
  - At least two shifts. Can be broken into two or four hour chunks.

The Numbers

- Stacking
  - Pbars stacked: 475.86 E10
  - Time stacking: 23.74 Hr
  - Average stacking rate: 20.05 E10/Hr
- Uptime
  - Number of pulses while in stacking mode: 37884
  - Number of pulses with beam: 36538
  - Fraction of up pulses was: 96.45%
- The uptime's effect on the stacking numbers
  - Corrected time stacking: 22.90 Hr
  - Possible average stacking rate: 20.78 E10/Hr
  - Could have stacked: 493.39 E10/Hr

- Recycler Transfers
  - Pbars sent to the Recycler: 465.97 E10
  - Number of transfers : 44
  - Number of transfer sets: 21
  - Average Number of transfer per set: 2.10
  - Time taken to shoot including reverse proton tuneup: 00.18 Hr
  - Transfer efficiency: 86.20%

- Other Info
  - Average POT : 5.98 E12
  - Average production: 21.79 pbars/E6 protons

- * Missed one or more A:IBEAM7 events somewhere in the middle of the user selected time span. Calculated time shot using 13 secs per transfer.
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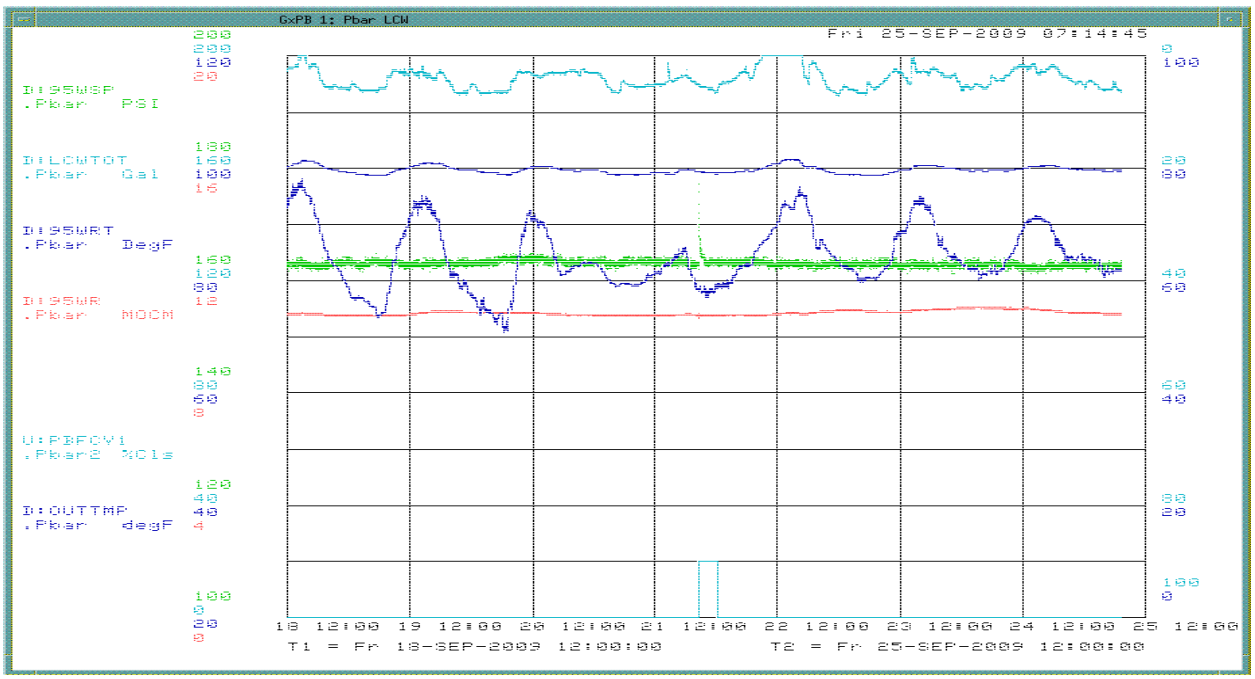
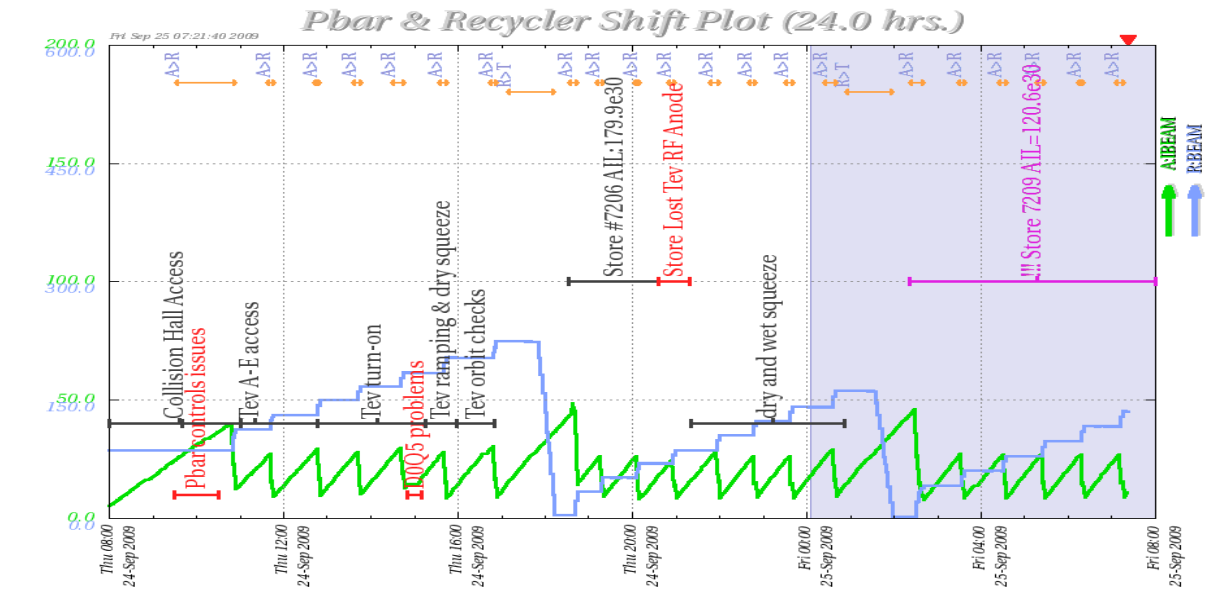
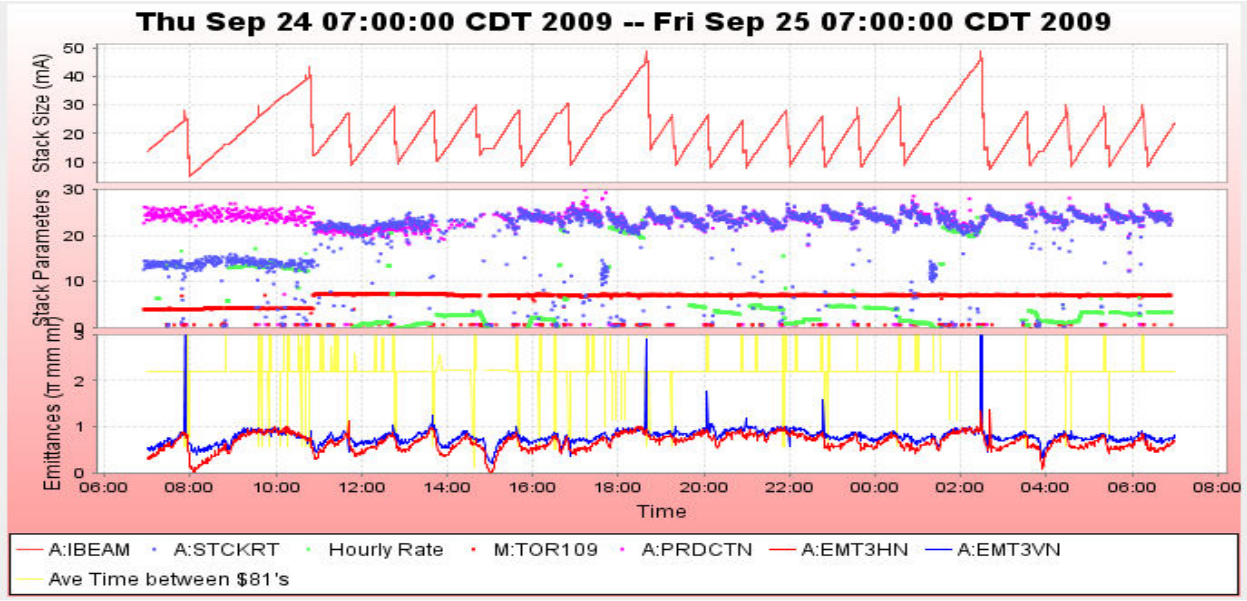
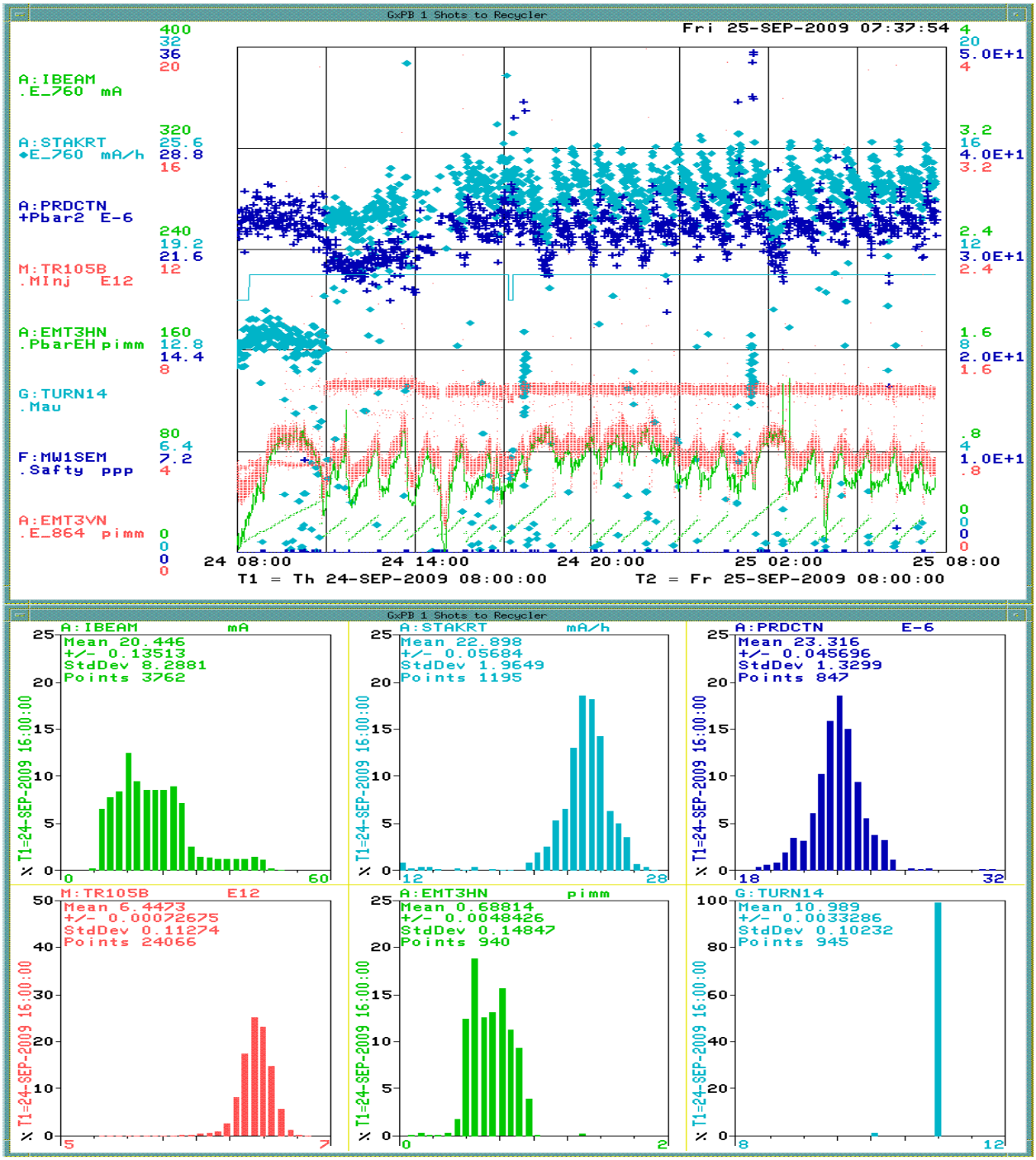
Plots

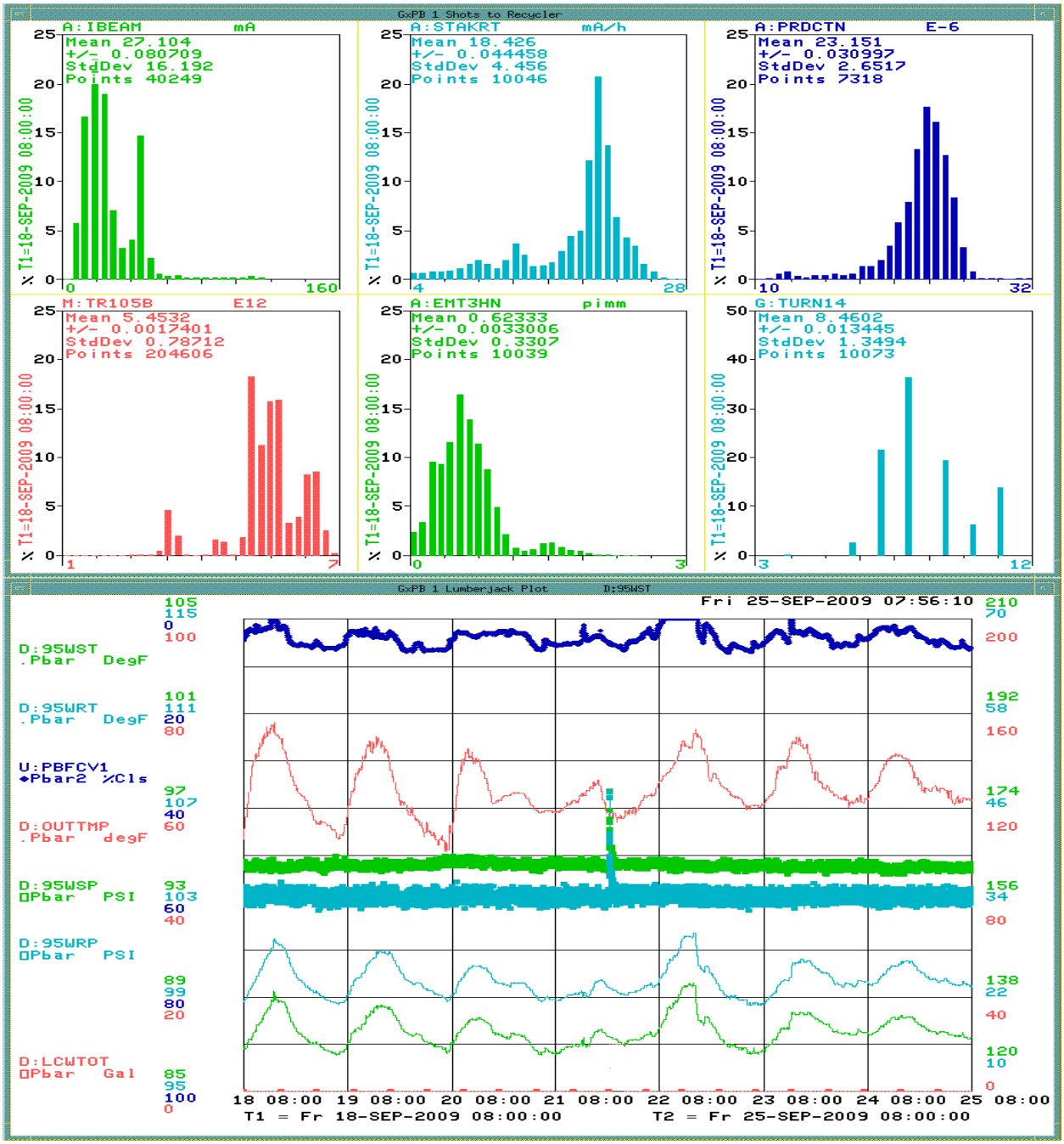
Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				424.41			397.33	93.62%	96.37%	96.00%	41	20	6.3412	7.287	1.8633
13887	Friday, September 25, 2009	6:17	27.08	8.17	20.05	98.05	116.89	18.88	94.17%	98.20%	97.32%	2	1	5.585	6.783	1.837
13886	Friday, September 25, 2009	5:23	27.29	8.02	20.22	78.92	98.19	19.22	95.05%	97.61%	96.15%	2	1	5.84	6.834	1.833
13885	Friday, September 25, 2009	4:30	27.15	8.31	19.95	60.30	79.12	18.89	94.68%	97.09%	96.77%	2	1	5.787	6.895	1.86
13884	Friday, September 25, 2009	3:32	27.70	8.54	20.25	41.39	60.35	19.06	94.11%	95.23%	94.76%	2	1	6.302	7.086	1.853
13883	Friday, September 25, 2009	2:40	10.35	8.92	22.09	38.65	38.71	20.76	93.96%	97.55%	97.10%	3	1	5.498	7.1	1.967
13882	Friday, September 25, 2009	0:36	29.58	8.73	21.98	141.14	161.78	20.72	94.27%	95.47%	95.56%	2	1	5.769	6.985	1.849
13881	Thursday, September 24, 2009	23:36	26.25	8.02	19.33	123.36	141.46	18.12	93.77%	95.73%	95.94%	2	1	5.827	6.997	1.855
13880	Thursday, September 24, 2009	22:46	26.31	8.39	19.01	105.65	123.48	17.86	93.95%	96.44%	96.74%	2	1	6.354	7.491	1.862
13879	Thursday, September 24, 2009	21:56	28.32	8.30	21.13	86.37	105.93	19.63	92.89%	97.32%	95.49%	2	1	7.766	8.675	1.857
13878	Thursday, September 24, 2009	20:55	24.79	7.69	18.21	69.75	86.53	16.78	92.10%	95.25%	94.62%	2	1	7.631	8.278	1.891
13877	Thursday, September 24, 2009	20:05	26.45	8.01	19.49	51.77	69.86	18.14	93.10%	96.70%	95.63%	2	1	7.23	7.898	1.833
13876	Thursday, September 24, 2009	19:16	26.53	8.59	19.05	34.04	51.85	17.81	93.52%	95.86%	95.48%	2	1	6.455	7.243	1.859
13875	Thursday, September 24, 2009	18:40	45.64	14.29	32.45	4.21	34.08	29.85	91.98%	95.88%	95.99%	2	1	7.841	7.986	1.848
13874	Thursday, September 24, 2009	16:49	30.56	8.67	22.73	203.55	224.82	21.35	93.94%	96.86%	98.37%	2	1	5.723	6.779	1.848
13873	Thursday, September 24, 2009	15:40	28.15	8.24	20.94	184.58	204.25	19.72	94.16%	96.80%	95.92%	2	1	5.576	6.634	1.829
13872	Thursday, September 24, 2009	14:41	29.96	12.26	19.08	167.19	185.04	17.87	93.65%	96.17%	96.09%	2	1	6.137	6.839	1.921
13871	Thursday, September 24, 2009	13:41	28.00	10.06	18.96	150.40	167.60	17.23	90.85%	95.45%	95.33%	2	1	7.483	8.353	1.899
13870	Thursday, September 24, 2009	12:46	29.39	9.46	21.03	130.94	150.70	19.87	94.48%	96.28%	96.36%	2	1	6.266	7.249	1.883
13869	Thursday, September 24, 2009	11:41	27.24	8.77	19.50	113.02	131.21	18.28	93.74%	95.69%	95.60%	2	1	6.138	7.388	1.883
13868	Thursday, September 24, 2009	10:49	40.41	12.10	28.96	86.16	113.32	27.31	94.29%	95.94%	94.78%	2	1	5.615	6.244	1.799




Pbar & Recycler Shift Plot (24.0 hrs.)
Fri Sep 25 07:21:40 2009
200.0
600.0
150.0
450.0
100.0
300.0
50.0
150.0
0.0
0.0
A>R
R>T
Collision Hall Access
Pbar controls issues
Tev A-E access
Tev turn-on
TCLO5 problems
Tev ramping & dry squeeze
Tev orbit checks
Store #7206 AIL:179.9e30
Store Lost Tev:RF Anode
dry and wet squeeze
!!! Store 7209 AIL=120.6e30
A:IBEAM
R:BEAM
Thu 08:00 24-Sep 2009
Thu 12:00 24-Sep 2009
Thu 16:00 24-Sep 2009
Thu 20:00 24-Sep 2009
Fri 00:00 25-Sep 2009
Fri 04:00 25-Sep 2009
Fri 08:00 25-Sep 2009


Thu Sep 24 07:00:00 CDT 2009 -- Fri Sep 25 07:00:00 CDT 2009
Stack Size (mA)
Stack Parameters
Emittances (π mm mr)
Time
06:00
08:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
00:00
02:00
04:00
06:00
08:00
A:IBEAM
A:STCKRT
Hourly Rate
M:TOR109
A:PRDCTN
A:EMT3HN
A:EMT3VN
Ave Time between $81's


GxPB 1 Shots to Recycler
Fri 25-SEP-2009 07:37:54
A:IBEAM .E_760 mA
A:STAKRT ◆E_760 mA/h
A:PRDCTN +Pbar2 E-6
M:TR105B .MInj E12
A:EMT3HN .PbarEH pimm
G:TURN14 .Mau
F:MW1SEM .Safty ppp
A:EMT3VN .E_864 pimm
24 08:00
24 14:00
24 20:00
25 02:00
25 08:00
T1 = Th 24-SEP-2009 08:00:00
T2 = Fr 25-SEP-2009 08:00:00
GxPB 1 Shots to Recycler
A:IBEAM mA
Mean 20.446
+/- 0.13513
StdDev 8.2881
Points 3762
A:STAKRT mA/h
Mean 22.898
+/- 0.05684
StdDev 1.9649
Points 1195
A:PRDCTN E-6
Mean 23.316
+/- 0.045696
StdDev 1.3299
Points 847
M:TR105B E12
Mean 6.4473
+/- 0.00072675
StdDev 0.11274
Points 24066
A:EMT3HN pimm
Mean 0.68814
+/- 0.0048426
StdDev 0.14847
Points 940
G:TURN14
Mean 10.989
+/- 0.0033286
StdDev 0.10232
Points 945
N T1=24-SEP-2009 16:00:00



Elogs

- MCR
  - 10:57 - return to slip stacking mode

Worklist items:

- Replace the existing C190 card for PBAR MADC #16 (PBAR $33 n1) with a C290 (http://www-bd.fnal.gov/cgi-worklist/worklist_form.pl?id=10678)
- DRF1-3 final amp tube replacement (http://www-bd.fnal.gov/cgi-worklist/worklist_form.pl?id=10678)
- D:IP713 is shorted in the tunnel (http://www-bd.fnal.gov/cgi-worklist/worklist_form.pl?id=10664)
- A:MS5H1V will not move, diagnose problem (http://www-bd.fnal.gov/cgi-worklist/worklist_form.pl?id=10646)
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